

FIRST CALIFORNIANS

The Golden State has put forth many contenders for the earliest people in the Americas. Dates attached to bones and stones range from 10,000 to 200,000 years ago, fueling debate about what constitutes real archaeological evidence.



by BLAKE EDGAR

Taken in the south Coast Ranges, this sunrise photograph depicts a rare landscape, a view apparently unaffected by humans, where indigenous plants still grow as they did when the first people arrived in California. Inset: Generally accepted as the earliest evidence of humans in the Americas, Clovis spear and arrow points appeared around 11,500 years ago. Several California archaeological sites contain Clovis-like tools, but the state has also produced numerous claims for far older sites.

CALIFORNIANS LOVE to set trends. From redwood hot tubs to organic baby vegetables, they seek out the new and different. Given its reputation as a cultural pacesetter, it's no surprise that the Golden State has made more than its share of claims for the earliest signs of culture in North America.

The first attempt to present California as a pioneer in the peopling of the New World followed the discovery of the infamous Calaveras skull near Angel's Camp in 1866 (see page 32). In recent decades, frequent attempts to push the date of human arrival in California beyond 11,000 years ago—even as far back as 200,000 years ago—have stirred fierce debate, but each time an archaeological consensus emerges that the latest evidence for the “first Californian” is merely another false start. Nonetheless, proponents of the idea that California was peopled during the late Pleistocene (the geologic epoch spanning from about two million to 10,000 years ago) stick to their sites and beliefs.

The ultimate question of when people first arrived in California, or North America for that matter, remains unresolved, despite the variety of archaeological, chemical, linguistic, and molecular techniques that scientists employ to find the answer.

“‘The Dating Game,’ as we like to call it, is a really tricky issue,” says Robert Bettinger, an archaeologist at the University of California at Davis. “We have some old stuff (in California), but we just don’t have the really good dates and associations on the older material.”

Diverse data have been used to support arguments that humans lived in California during the late Pleistocene. Fractured stones resembling archaic tools, human skulls and other bones, broken or burned animal bones, and alleged cultural features such as hearths and fire pits have been touted at various sites. But nowhere do all of these things occur together. And the sites raise some basic questions that may elude simple answers: Are modified stones really human tools or could the

same fractures form naturally? Are animal bones left over from meals beside campfires? Do possible or definite human remains occur in an undisturbed geologic context that can be dated? And finally, if human bones or artifacts can be dated, how accurate are the dates?

Archaeologists who insist that humans never entered the Americas before about 12,000 years ago base their conclusion on the widespread appearance after that date of stone tools named for the type site near Clovis, New Mexico. Like the latest fad, Clovis projectile points appeared across North America 11,500 years ago and disappeared as quickly in most areas five hundred years later. Clovis tools include lanceolate-shaped spear points with concave, fluted bases and smaller, triangular points. Both types show fine workmanship with percussion-flaked scars covering each face.

Few things in archaeology are as secure as the dating and integrity of Clovis sites. They have yielded numerous radiocarbon dates and withstood geologic scrutiny

across North America, so many archaeologists cling to these dates with tenacity rivaling that of the Pleistocene people proponents.

Most western Clovis sites have been defined as kill sites because the points are often directly associated with bones of large mammals such as mammoths, bison, camels, tapirs, and ground sloths. So theories have developed that during the last Ice Age, human hunters followed migrating waves of mammals across the ice-free Bering Land Bridge—temporarily exposed between Siberia and Alaska by low sea levels—and at some point fanned out across the North American plains, leaving few traces as they crossed the continent.

An alternative view posits that glaciers and inhospitable conditions ruled out a land crossing, so the first North Americans arrived by boat, island hopping along the Pacific Northwest coast. Coastal Alaskan sites dating back at least 10,000 years have been found, but any sites that could provide clues to earlier migrations

now lie underwater. There is no direct evidence for the coastal crossing hypothesis. However, Canadian scientists recently drilled into sediments off Vancouver Island and found plant remains, showing that sea level was three hundred feet lower 10,500 years ago. That broad, coastal corridor might have been exploited by some intrepid bipeds.

What happened next is anyone's guess. In California, Clovis-like artifacts have been found, particularly around ancient lakeshores, but these tools are distinct from classic Clovis types and usually not associated with the large mammal remains found elsewhere. Probably, the first Californians combined hunting with fishing and gathering plants and shellfish. Bettinger believes that none of the artifacts from California that share some affinities with Clovis points are as old as that technology. “Since Clovis-like tools persist for long periods in parts of the country, there's no reason to think that the occupations (in California) are older than 10,000 years,” he says.

LARRY ULRICH INSET: CAROLINE KOPP

Supporters of pre-Clovis people only need to be right once—find one site that withstands all critical tests—to validate their claim. The debate focuses on what kind of evidence will prove acceptable to the archaeological community at large. A handful of sites in North and South America have lately moved to the center of the pre-Clovis debate, and one may yet outlast its critics. But California offers a lesson in its numerous pre-Clovis sites that blossomed briefly after a shower of attention, only to wither under the subsequent scrutiny.

California's most famous pre-Clovis claimant is the Calico Hills site in the Mojave Desert near Barstow. After a spectacular career uncovering hominid fossils and artifacts in East Africa, anthropologist Louis Leakey turned his attention to an alluvial fan of rocks and debris that once poured down the southeastern face of the Calico Mountains. Leakey thought that some of the stone artifacts found on the alluvial fan's surface in the 1950s by archaeologist Ruth Simpson resembled the paleolithic tools he knew well from African Pleistocene sites. Because the alluvial fan dates to at least 70,000 years ago, with the earliest layers probably



Famed archaeologist Louis S.B. Leakey championed the Calico Hills site in the Mojave Desert as potentially bearing evidence of the first humans in the New World. He directed excavation there from 1964 until his death in 1972, and here he examines an excavated piece of stone.

200,000 or more years old, Calico Hills potentially held the earliest evidence of humans in the New World. Leakey suggested that excavations begin to find stone tools *in situ*, or in their original position within the geologic strata.

Simpson and Leakey directed work at Calico Hills from 1964 until his death in 1972. Simpson remains actively involved in the site, which draws volunteer teams of weekend excavators and receives about nine thousand visitors yearly. In her autobiography, *Disclosing the Past*, archaeologist Mary Leakey recalls her husband's faith in the work at Calico. "However meticulous the excavation, he was still arguing in a completely unscientific way, by not considering all the processes that *might* have produced the pieces he regarded as artefacts." From piles of rocks, excavators "selected certain pieces as possibly pleasing to Louis," who proclaimed them as stone tools. "The proportion of pieces that finally made the grade was infinitesimal compared to the whole."

By 1968, Leakey had some two hundred alleged tools made of chert and chalcedony. Given the potential age of the rock strata, if these were true artifacts of the same age, they would predate the oldest known remains of modern *Homo sapiens* and Neanderthals worldwide. No human or hominid bones have ever emerged at Calico Hills.

Walking atop a heap of stones on the alluvial fan that surrounds the excavation, stooping to pick up a reddish, angular flake that looks vaguely like a Neanderthal tool, one senses the kinetic energy and power behind the debris flow that hauled these stones. Calico's critics contend that the chipped flints aren't artifacts, but geofacts, produced naturally during the tumbling, crashing journey of boulders carried downslope. In 1973, geologist C. Vance Haynes of the University of Arizona wrote in a critical review of Calico Hills, "It would be surprising *not* to find a few pieces that resemble artifacts."

By 1977, more than four thousand pieces of stone had been designated artifacts at Calico Hills. A few years later, the artifact count had grown threefold. Yet Calico Hills lacks some traditional signatures of archaeological sites. For instance, there are no "artifacts" of a rock type that would have come from a

faraway source. Also, for a proposed stone tool workshop, surprisingly few cores, master rocks from which finer flake tools are struck, have turned up that can be linked to adjacent flakes.

SUCH PECULIARITIES led some researchers to analyze the Calico finds. Archaeologist Louis Payen, of the University of California at Riverside's Radiocarbon Laboratory, measured the angles of percussion scars on flakes and cores of purported prime artifacts at Calico as well as rocks from non-artifact stockpiles and naturally broken stones from nearby Mule Canyon. Payen compared these figures with those for the more recent Lake Manix artifacts described by Ruth Simpson from the vicinity of Calico Hills.

"We couldn't distinguish the so-called prime artifacts from those that had been thrown away as non-artifacts," says Payen. "They seemed to be from the same population."

In addition, he found that only three or four percent of the uncontested surface tools bore edge angles greater than 90 degrees, but 34–37 percent of the purported artifacts excavated from Calico Hills had obtuse edge angles. When a rock core is struck by human hands holding another rock or bone, the dislodged flake has an angle to the struck surface that is almost always acute. "Obtuse angles are not produced by humans, not on purpose anyway, whereas nature seems to have enough force so it does happen," says Payen.

Simpson, now curator emeritus at the San Bernardino County Museum, stands her ground on Calico. "Do I still think it's pre-Clovis? You better believe it," she says. Simpson's co-workers measured a different edge angle on thousands of flakes and came up with results opposite of Payen's. They questioned Payen's inclusion of miscellaneous discarded rocks in his study sample, but he did this in order to compare the selected "prime artifacts" with the bulk of the Calico material. Simpson maintains that an excavated semicircle of 13 cobbles was arranged by humans. Although the cobbles were long argued to be a hearth, two techniques for measuring how much radiation had penetrated the rocks—thermoluminescence and electron spin resonance—showed that the last campfire around this hearth

would have to have occurred at least 400,000 years ago.

The presence or absence of human fire pits has also fueled debate over another proposed pre-Clovis site in southern California, Santa Rosa Island. When surveyors mapped this member of the Channel Islands in the 1850s, one found a fossil elephant tooth that was given to the California Academy of Sciences. An adjacent tusk crumbled during the attempt to excavate it. These initial clues to the island's prehistoric life were the remains of a dwarf mammoth, an endemic species that stood as short as four feet and sported tusks averaging five feet long. Field investigations of Santa Rosa's prehistory began only after World War II at the impetus of Phil C. Orr, then curator of geology and anthropology at the Santa Barbara Museum of Natural History.

Beginning in 1947, Orr explored and excavated parts of the island for 21 years, unearthing mammoth bones, studying geology, and seeking evidence for sea level changes over time. But he became most captivated by the island's human history—the numerous Indian burials and artifacts—and concluded that the island supported about two hundred villages during the past 7,500 years.

The island's sediments undoubtedly contain fairly recent human remains, but Orr extended this record back in time with his lively interpretation of layers in the underlying Tecolote member, which ranges in age from about 10,000 to 38,000 years ago. Orr proposed that "a repetitious 'pattern' of inferior chipped stones" was associated with mammoth bones and "fire areas": evidence for Pleistocene humans' campsites. These people were hunting dwarf mammoths and cooking the meat over fires, as well as harvesting abundant abalone from the coast.

The evidence for controlled fire comes from a one-mile stretch of the island's north coast, where in at least 110 cases a brick-red sediment—seen in cross-section as U-shaped pits or shallow bowls several feet in diameter—contrasts with lighter, surrounding clays. Bands of dark soil with charcoal and fragments of charred bird and mammoth bones occurred in some areas. Orr ruled out a natural cause for the "fire areas," given the relative rarity of lightning strikes and grass fires.



The patch of red sediment on the slopes of Arlington Canyon is one of many proposed human "fire pits" from Santa Rosa Island. Recent studies indicate that the red staining more likely comes from gradual exposure to groundwater.

Radiocarbon dates of bones and other organic material from the sites ranged from about 11,000 years ago to beyond the effective limit of the radiocarbon method (about 40,000 years).

In his 1968 book, *Prehistory of Santa Rosa Island*, Orr recognized the controversy surrounding his subject. He included a section called "Acceptable Evidence" and summarized the types of evidence for the presence of Pleistocene people: human bone and recognizable artifacts found *in situ*; stones, shells, or bones found in an unusual geological context; and signs of fires with no apparent natural cause. He added that "ultra-conservative" archaeologists would demand that all of these elements be found before any North American, pre-Clovis site would be accepted, scoffing, "This is something like the Philadelphia lawyer's secret of success: 'Deny everything, admit nothing, and demand proof.'"

WELL, SCIENCE at least demands that ideas be tested until they can be disproved or approved. And in 1986, scientists from Orr's museum and from the University of California at Santa Barbara proposed the latest alternative explanation for Santa Rosa Island's "fire areas." Orr conducted burning experiments and concluded that only very long, hot fires could have created the rich red staining. John Cushing and his colleagues poured, or rather dripped, cold water on Orr's interpretation. Cushing, a former geneticist and research associate at the Santa Barbara Museum of Natural History, believes that the staining and the apparent charring of bone resulted not from hot fires but from gradual exposure to cool groundwater.

A fossil wood locality on Santa Cruz Island similar to Orr's "fire areas" on nearby Santa Rosa inspired the new hypothesis. The researchers determined from the nature of the soil that the reddish color

which was present could not have resulted from heating. They suspected that it came from iron-rich compounds that had precipitated from the wood after it was carbonized by groundwater. X-ray analysis confirmed an abundance of iron and manganese in the stained sediments. The compounds in the wood may have oxidized slowly in the presence of water, creating the appearance of burned sediment.

Cushing says the fire areas on Santa Rosa Island are soft and full of clay and do not resemble burned sites. In addition to quartz, feldspar, and hematite, one sample contained smectite, a clay mineral that can withstand immersion in water but is readily converted to another clay when heated. So the sediment could not have been subjected to heat from a fire.

As for the "burned" mammoth and bird bones, their darkened surfaces resembled neither the pattern of fire damage seen in experiments by Cushing and his fellow "Elephant Men" burning deer, cow, and dove bones on coals, nor that found in temperature-controlled fire experiments by other researchers. The Santa Rosa bones also contain iron and magnesium, which could discolor the bones after being deposited by percolating groundwater.

Cushing believes that humans first inhabited Santa Rosa Island after the mammoths had died out, and that the apparent association of mammoth bones with human artifacts is itself an artifact of redeposition. But he reserves room for the emergence of other evidence.

Others entertain the possibility of pre-Clovis people on the island. Rainer Berger, archaeologist and geophysicist at the University of California at Los Angeles and a longtime collaborator with Orr, concedes that many of the "fire areas" result from groundwater or other natural sources. But he thinks that the apparently close association of bones, stones, and charcoal at the Woolley site on the island begs another explanation. "If it were elsewhere in the world people wouldn't hesitate to call it an archaeological site," says Berger; but at 43,000 years old, the site has few takers. "On the other hand, worldwide anatomically modern man appears before 30,000 years ago, including in Australia. It's almost a miracle that they shouldn't be here earlier too."

Unfortunately, there are no human bones from the Woolley site. So far, the oldest radiocarbon date on human bone from Santa Rosa Island, recently reconfirmed by Berger, produced an age of 10,000 years. Berger says that the types of evidence for human antiquity—bones, tools, or signs of culture such as fire—offer varying levels of confidence in a site's validity. So whether one accepts the idea of pre-Clovis people in North America becomes "a matter of how strict you want to be in your judgment."

HUMAN SKELETONS would provide the most unequivocal evidence of Pleistocene people in California. But even bones can evade and confound attempts to get reliable dates. Of 13 New World sites once purported to possess human bones much older than 11,000 years, all but two of the sites are in California, ten in southern California alone.

One of the California skeletons, a skull and some fragmentary bones found during road construction near Laguna Beach in 1933, was dated as roughly 17,000 years old by the radiocarbon method in 1969. At the time, this specimen and one called Los Angeles Man were believed to be the oldest skeletons in North America. The Laguna specimen came from an alluvial fan, so like the stones at Calico Hills, it had been moved some distance from wherever it once lay buried. But Laguna Man became an anchor for the dating of other human skeletons using a technique called amino acid racemization.

The technique relies on the fact that amino acids, protein building blocks found in all living organisms, occur in two "mirror image" forms that rotate polarized light in opposite directions. When a living organism dies, amino acids slowly flip from one form to the other by a process called racemization. The extent of racemization increases with time after the organism dies, and calculating the ratio of each form of amino acid present can date when the organism died. However, the racemization rate can be affected by factors such as temperature, soil make-up, and properties of the amino acids themselves.

Jeffrey L. Bada, of the University of California at San Diego's Scripps Institution of Oceanography, used the Laguna bones to calibrate the racemization rate

for aspartic acid in human bone found in coastal California. He obtained a rate constant that he thought could help date other California skeletons and ran a test with Los Angeles Man. Bada's racemization date of 26,000 years agreed with a prior radiocarbon date of more than 23,600 years for the age of this skeleton, so the racemization dating technique looked promising.

Subsequently, amino acid racemization gave Pleistocene ages to bones from seven other California sites, including the startling ages of 48,000 years for the Del Mar skull found in 1929 and 70,000 years for the Sunnyvale skeleton. Yet doubts arose because some of the skeletons occurred with burial artifacts suggesting a younger age. These dates seemed to fit like the proverbial square peg.

In the midst of some scientific headshaking, other labs came up with new dates for the skeletons in the 1980s. The Sunnyvale specimen, a nearly complete female skeleton excavated in 1972 from a drainage channel at the south end of San Francisco Bay, was redated by the uranium series technique, which gave an age of between 8,300 and nine thousand years. Then scientists from the University of California at Riverside, Stanford University, and the University of Arizona ran a series of dates on three samples of the Sunnyvale bones using a revised radiocarbon method employing accelerator mass spectrometry (AMS).

Radiocarbon dating takes advantage of the fact that living things stop soaking up radioactive carbon atoms after they die. The radioactive carbon already present decays at a known rate (the half-life of carbon 14, during which half of any amount will decay, is 5,730 years), and the extent of decay can be measured to date an organism's remains. The AMS technique, developed in the early 1980s, requires far smaller samples of bone proteins—milligrams or even micrograms instead of grams—to obtain dates than do conventional means. "If you can see it you can date it," says R. Ervin Taylor, director of the Radiocarbon Laboratory of the University of California at Riverside.

So the redating of controversial bones became practical. Taylor and his colleagues redated the Sunnyvale skeleton to between three thousand and five thousand years ago. Then, in 1985 Bada

retracted the 70,000-year age for the Sunnyvale skeleton as well as his racemization dates for Del Mar and five other specimens. The new ages for these skeletons all fell between three thousand and 11,000 years, wiping away pre-Clovis claims. Additional dates from Taylor's lab and others confirmed similar ages for skeletons from a total of nine controversial California sites.

Bada believes that his erroneous dates came from flaws in the original radiocarbon dates for the Laguna and Los Angeles skeletons. "There was no reason to question the dates on Los Angeles Man and Laguna since they were done in the lab of Willard Libby, who won the Nobel Prize for the development of radiocarbon dating," says Bada. "It was really a shock to all of us when those dates turned out to be wrong." The bum dates threw off Bada's calibration constant and skewed the subsequent racemization-based dates. "If the sample you use for calibration is incorrectly dated, then the racemization rates based on the constant will be inaccurate," he says.

Taylor suspects that a separate calibration constant for amino acid racemization should be found for each site, or each microenvironment along the California coast. The quality of bone preservation, which depends on where bones lie buried, affects racemization, so Taylor says that comparisons should only be made between bones that have been preserved in similar environments.

SOME OF THE most likely candidates for California's earliest sites lie around the edges of ancient lake basins. The old shores of Tulare Lake have yielded several Clovis-like points in proximity to the remains of large, Pleistocene mammals. It remains unclear whether archaeologists can establish a connection between the tools and the bones. "If we have a little luck we might find a buried Clovis site there," says U.S. Bureau of Reclamation archaeologist G. James West. "You practically have to find a fluted point stuck in the ribs of a mammoth to demonstrate association."

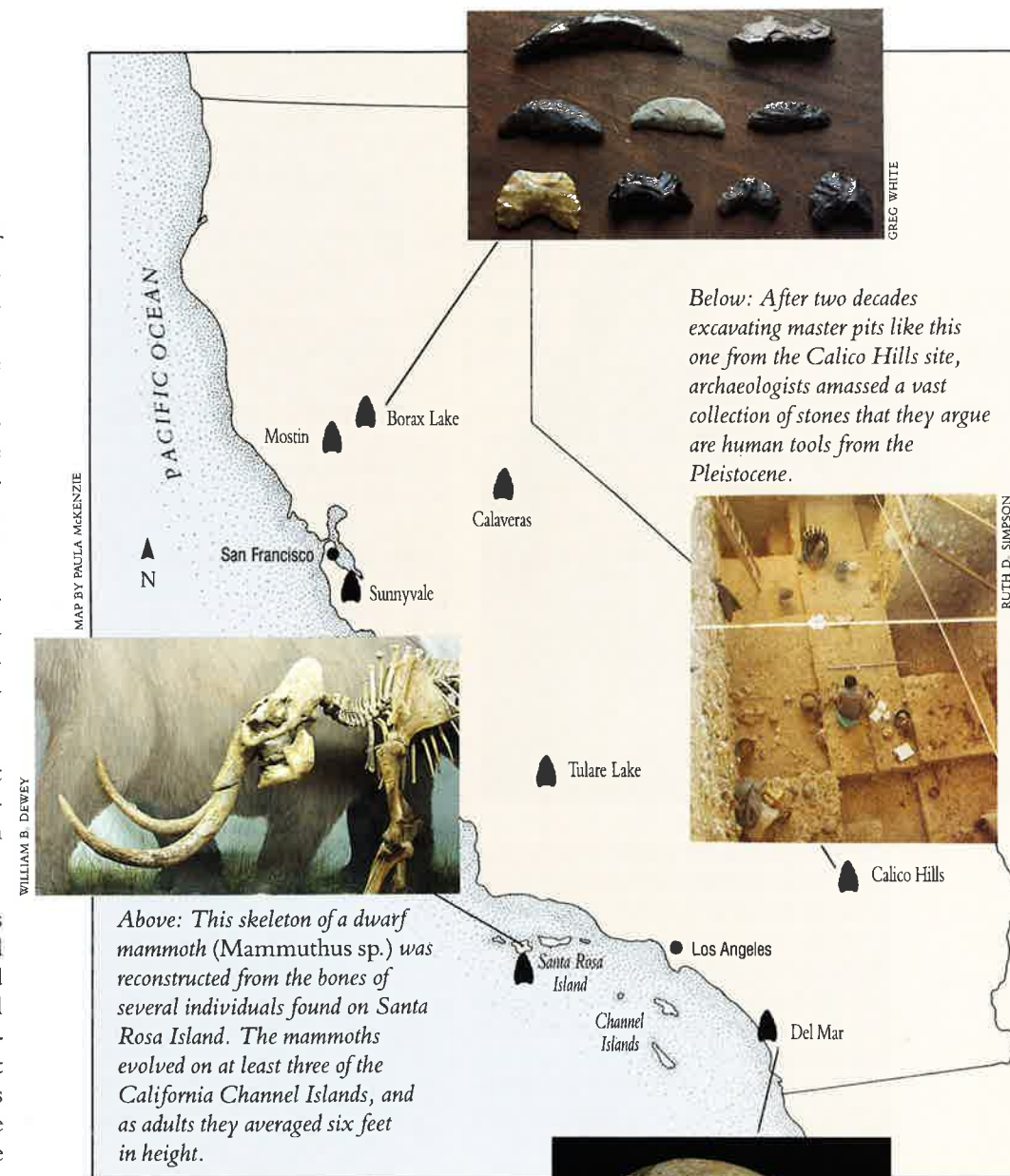
In northern California, some early sites cluster around Clear Lake. The site of Borax Lake, first excavated in the 1930s and 1940s, remains perhaps the best example of what the earliest signs of culture

LEGEND

Controversial Archaeological Sites and Finds

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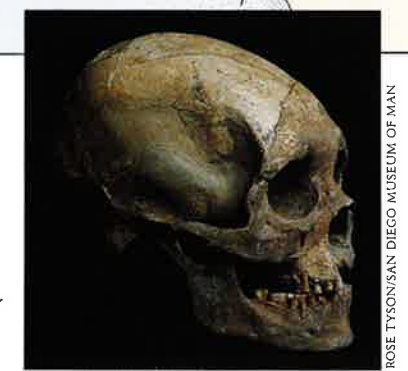
Below: Obsidian and chert crescents from the Borax Lake site are believed to be between eight thousand and 11,000 years old. Crescent-shaped tools, along with fluted points, serve as markers of paleoindian sites in the West and are often found around the edges of Pleistocene lakes.



Below: After two decades excavating master pits like this one from the Calico Hills site, archaeologists amassed a vast collection of stones that they argue are human tools from the Pleistocene.



Above: This skeleton of a dwarf mammoth (*Mammuthus* sp.) was reconstructed from the bones of several individuals found on Santa Rosa Island. The mammoths evolved on at least three of the California Channel Islands, and as adults they averaged six feet in height.



Right: This skull from Del Mar, and human bones from ten other California sites, were believed to date back into the Pleistocene. Redating of these remains by other techniques confirmed that all are younger than 10,000 years.

in California would look like. The site contains Clovis-like fluted points that may date back 12,000 years. And just south of Clear Lake, dozens of human burials have eroded from the bank of Kelsey Creek at the Mostin site. One skeleton was dated to 11,000 years ago, but the types of tools and other evidence suggest that Mostin cannot be older than eight thousand years.

Even though the bulk of evidence indicates that the first Californians arrived between 10,000 and 12,000 years ago, some of the state's pre-Clovis claims have encouraged the search for early sites in South America. In Brazil, for instance, archaeologists cite Calico Hills and Santa Rosa Island to bolster an argument for mid-Pleistocene people at Toca de Esperança. South America has become an archaeological frontier for early claims.

Perhaps the most promising of these sites is Monte Verde in Chile, where tools of bone, wood, and ivory come from layers dating roughly 12,000 to 13,000 years ago. More questionable evidence of charred wood in earlier layers dates to around 33,000 years ago. Fell's Cave, another Chilean site near the Strait of Magellan, has widely accepted evidence of human use from up to 11,000 years ago. So if the first Californians, or North Americans, arrived only 12,000 years ago, they certainly spread out quickly.

Meanwhile, "the dating game" continues, attempting to supply ages for the various sites and types of human culture that archaeologists uncover. But dates alone are useless unless they can be linked to solid, unequivocal evidence for human presence. It's clear that a lot of people passed through California after the end of the Pleistocene. Many others stayed, creating distinctive tools and other wares, the first in a long history of cultural trends. □

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The Celebrated Fossil Man of Calaveras County

by JOANN C. GUTIN

BORN INTO A prosperous and gifted northeastern family, Josiah Dwight Whitney seemed destined from birth to become a member of the American intellectual aristocracy. As a brilliant and opinionated student of geology and the natural sciences at Yale, studying under the renowned and influential scientist Benjamin Silliman, Whitney was assured a place in the tight network of American gentlemen-scholars. But Whitney was more than just privileged and smart. He was also ambitious.

After leaving Yale, determined to conduct a thorough geological survey of the fledgling state of California, he used his impressive social and academic connections, and his undeniable ability, to win appointment as California's first State Geologist in 1860. Trouble began almost the moment the ink on his contract dried.

Whitney had a different, and altogether grander, vision of his task than that of the legislators and taxpayers who paid his salary. He planned to document California's "rocks, fossils, soils, minerals, and its botanical and zoological productions." Sacramento officials just wanted him to find promising sites for gold and oil, and report back, pronto.

Horried at the shortsightedness of these elected officials, the young geologist became a crusader against gold and oil speculation. Between the years 1860 and 1864, he submitted negative reports on half the reported strikes he visited, a stance that gained him few admirers either in Sacramento or the Sierra. He quarreled constantly with lawmakers, who periodically slashed his salary and funding in an effort to get him to stop cataloging useless plants and fossils and to focus on the task at hand: finding oil and gold.

Enter William Matteson, a blacksmith and part-time gold miner from Angel's Camp. While working in the gravels of an ancient streambed 132 feet below the surface of Bald Mountain, Matteson struck what he thought was a petrified tree root. Curious, he brought it to the surface, cleaned it, and found to his astonishment that it was a human skull. How had it come to be lying so deep beneath the surface, at a level where the bones of long-extinct animals were a regular occurrence?

Matteson took his find to the local medical doctor, William Jones, "a gentleman of the highest reputation" (according to an article written 30 years later). Jones was something of an amateur paleontologist, with a large collection of Indian skulls in his office. Jones showed Matteson's find to his equally respectable friend, Wells Fargo agent George Scribner, and the two seemingly decided this was a heaven-sent opportunity to embarrass the high-handed state geologist.

In June of 1866, Jones sent the relic to Whitney in San Francisco, with a note describing its remarkable provenance. He was heard to say loudly, as he posted the fossil, "This sure knocks the hell out of Moses."

Within days, the excited Whitney arrived in Angel's Camp, where he interrogated Jones, Scribner, and Matteson, and convinced himself of their honesty. The shaft from which the skull had allegedly come was underwater so he was unable to inspect it, but in his enthusiasm for the great discovery, Whitney apparently considered this unimportant. Finally, he must have thought, he'd made a discovery that would validate his beloved survey, and silence the know-nothings in Sacramento.

On July 16, 1866 Whitney reported on the astounding find to the California Academy of Natural Sciences,

where he served as the librarian. The Calaveras skull demonstrated, he announced, that humans had lived in California in Pliocene times, before glaciers had covered the state and carved out the Yosemite Valley. The humble California miner had unknowingly discovered the earliest evidence of human life, not just in California, not just in North America, but in the world. (Although some Neanderthal remains had been found in Europe earlier in the century, Whitney may not have known about them. In any case, their age and meaning were still a mystery.)

Next morning, the daily *Alta California*, which had been castigating the state geologist editorially for years, reported breathlessly on his momentous discovery to the people of the state.

Popular opinion, though, was not to be so easily shifted in Whitney's favor. Two weeks after Whitney's address at the Academy, humorist Bret Harte published the satirical poem "To a Pliocene Skull" in the *Californian*, a widely circulated humor magazine. And the *Pacific*, a religious journal, reported that the Calaveras skull was "a fine California joke upon our state geologist." Its correspondent noted astutely that "California miners have always...had a low estimation of Eastern geologists."

Whitney was serenely untroubled by this campaign of ridicule and innuendo. In July he took his trophy to the annual meeting of the American Association for the Advancement of Science, which was then, as now, the largest and best-attended scientific meeting in the country. The purportedly ancient skull, complete but for the parietal and occipital bones, excited heated debate. Although the skull was modern in appearance—"capacious enough to have held the brain of a philosopher," as Whitney observed fondly—it's great age was indicated by its mineralized state, proving "positively that man is at least as old as the mastodon on this coast."

Reactions among the assembled

scientists ranged from healthy skepticism to outright disbelief. How could a skull so old be anatomically modern? Why did it show no evidence of transport, if it had really been bounced around in a Pliocene stream? And how could Whitney be sure it had really been found at the depth Jones attested?

Whitney remained supremely confident, and took his prize with him when he returned to the East Coast, dignity intact, to take up directorship of the newly created Harvard Mining School. In his magnum opus, *The Auriferous Gravels of the Sierra Nevada of California*, published by the Harvard University Press in 1880, the professor devoted one entire chapter to Calaveras Man, citing at least eleven other cases of deeply buried human fossils.

Whitney died in 1896, full of laurels, still convinced that even if he had failed to provide ungrateful Californians with a geological survey worthy of a Yale-trained scientist, he had succeeded in making one of the most significant paleontological finds of the century.

As it turned out, he died just in time. Over the next few decades, human remains of genuine antiquity unearthed in Europe and Asia gained credence, and while the puzzle of human evolution was not by any means solved, it became clear that an anatomically modern human in Pliocene North America was a piece that was never going to fit. The persistent allegations of a practical joke, which had been held in check east of the Rockies by Whitney's position and prestige, grew more clamorous and convincing. One by one, even the anthropological fence-sitters realized that Whitney had been had, and by the 1940s, the dean of California archaeology, Robert Heizer of the University of California at Berkeley, would write that the Calaveras skull "was one of the most notorious anthropological hoaxes ever perpetrated."

The origins of the hoax came some

A miner found the Calaveras skull in ancient streambed gravels near Angel's Camp, California in 1866. Word of the find reached State Geologist Josiah Dwight Whitney, who touted the skull to fellow scientists as the oldest human fossil in the world.



years later, when a group of Matteson's neighbors confessed they had tossed a contemporary Indian skull, possibly mineralized from immersion in nearby Dead Man's Spring, down the mine shaft. According to one account, they did it to frighten the prospector; according to another, they merely wanted to remind him it was time for dinner.

But as is so often the case with the aristocracy—intellectual or otherwise—their fame persists long after their errors in judgment are forgotten. The highest point in the lower 48 states, Mount Whitney, bears the name of the geologist who was so sure he'd found California's first fossil man. □

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